N94P0246US02

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patentee	:	Tsuyoshi Oda
Application to Reissue Patent No.	:	5,703,646
Issued	:	December 30, 1997
For	:	**PICTURE ENCODING METHOD, PICTURE ENCODING APPARATUS AND PICTURE RECORDING MEDIUM**

DECLARATION OF TSUYOSHI ODA

As a below-named inventor, I hereby declare that:

1. My residence, post office address and citizenship are as stated below next to my name.

2. I verily believe myself to be the original, first inventor of the invention described and claimed in Letters Patent No. 5,703,646 and in the specification filed herewith for which I solicit a patent.

3. I hereby state that I have reviewed and understand the contents of the aforementioned specification, including the claims.

4. I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, § 1.56(a).

5. I hereby claim foreign priority benefits under Title 35, United States Code § 119 of Application Number 5-105943, filed April 9, 1993 and PCT/JP94/00610 filed April 11, 1994 and state that no other application for patent or inventor's certificate or any PCT international application was filed by me on the same subject matter prior to April 9, 1993.

6. I do not know and do not believe that the invention was ever known or used in the United States of America before my invention thereof.

7. I verily believe the original Letters Patent to be wholly or partly inoperative or invalid by reason of my claiming more or less that I had right to claim in the patent by at least failing to claim a method and an apparatus including:

(A) An encoding method for encoding source video data, the method comprises the steps of encoding said source video data to generate first encoded data; detecting a difficulty of the encoding process of source video data based on bit amount of said first encoded data; deciding an optimum quantization step size which is varied depending on said difficulty so that said quantization step size becomes smaller when said source video data is more complexity and said quantization step size becomes larger when source video data to be encoded is more simple; and encoding said source video data by using said optimum quantization step on encoding unit basis, wherein the predetermined quantization step size has a fixed value and the optimum quantization step size has a non-fixed value,

wherein said source video data is always encoded using said predetermined quantization step and said optimum quantization step in which the predetermined quantization step size is always different from the optimum quantization step size.

(B) An encoding method for encoding source video data, the method comprises the steps of:

encoding said source video data with a predetermined quantization step size to generate first encoded data;

detecting a difficulty of the encoding process of source video data based on amount of said first encoded data;

calculating an allocated code quantity which is varied depending on said difficulty so that said allocated code quantity is more increased when said source video data is more complex and said allocated code quantity is more decreased when source video data is more simple; and

encoding said source video data by an optimum quantization step size based on said allocated code quantity,

wherein the optimum quantization step size has a non-fixed value, and

wherein said source video data is always encoded using said predetermined quantization step and said optimum quantization step in which the predetermined quantization step size is always different from the optimum quantization step size.

(C) An encoding method for encoding source video data, the method comprises the steps of:

detecting motion vector of a macro block of said source video data;

encoding said macro block of said source video data by using a predetermined quantization step size and said detected motion vector to generate first encoded data;

detecting a difficulty of the encoding process of source video data based on amount of said first encoded data;

deciding an optimum quantization step size, said optimum quantization step size being varied depending on said difficulty so that said optimum quantization step size

becomes smaller when said source video data is more complex and said optimum quantization step size becomes larger when source video data to be encoded is more simple; and

encoding said macro block of said source video data by using said optimum quantization step and said detected motion vector,

wherein the predetermined quantization step size has a fixed value and the optimum quantization step size has a non-fixed value, and

wherein said source video data is always encoded using said predetermined quantization step and said optimum quantization step in which the predetermined quantization step size is always different from the optimum quantization step size.

(D) An encoding method for encoding source video data, the method comprises the steps of:

selecting a predictive mode of a macro block of said source video data;

encoding said macro block of said source video data by using a predetermined quantization step size and said selected predictive mode to generate first encoded data;

detecting a difficulty of the encoding process of source video data based on amount of said first encoded data;

deciding an optimum quantization step size, said optimum quantization step size being varied depending on said difficulty so that said optimum quantization step size becomes smaller when said source video data is more complex and said optimum quantization step size becomes larger when source video data to be encoded is more simple; and

encoding said macro block of said source video data by using said optimum quantization step and said selected predictive mode,

wherein the predetermined quantization step size has a fixed value and the optimum quantization step size has a non-fixed value, and

wherein said source video data is always encoded using said predetermined quantization step and said optimum quantization step in which the predetermined quantization step size is always different from the optimum quantization step size.

(E) An encoding apparatus for encoding source video data, the apparatus comprising:

means for detecting motion vector of a macro block of said source video data;

first encoding means for encoding said macro block of said source video data by using a predetermined quantization step size and said detected motion vector to generate first encoded data;

means for detecting a difficulty of the encoding process of source video data based on amount of said first encoded data;

means for deciding an optimum quantization step size, said optimum quantization step size being varied depending on said difficulty so that said optimum quantization step size becomes smaller when said source video data is more complex and said optimum quantization step size becomes larger when source video data to be encoded is more simple; and

second encoding means for encoding said macro block of said source video data by using said optimum quantization step and said detected motion vector,

wherein the predetermined quantization step size has a fixed value and the optimum quantization step size has a non-fixed value, and

wherein said source video data is always encoded using said predetermined quantization step and said optimum quantization step in which the predetermined quantization step size is always different from the optimum quantization step size.

(F) An encoding apparatus for encoding source video data, the apparatus comprising:

means for selecting a predictive mode of a macro block of said source video data;

first encoding means for encoding said macro block of said source video data by using a predetermined quantization step size and said selected predictive mode to generate first encoded data;

means for detecting a difficulty of the encoding process of source video data based on amount of said first encoded data;

means for deciding an optimum quantization step size, said optimum quantization step size being varied depending on said difficulty so that said optimum quantization step size becomes smaller when said source video data is more complex and said optimum quantization step size becomes larger when source video data to be encoded is more simple; and

second encoding means for encoding said macro block of said source video data by using said optimum quantization step and said selected predictive mode,

wherein the predetermined quantization step size has a fixed value and the optimum quantization step size has a non-fixed value, and

wherein said source video data is always encoded using said predetermined quantization step and said optimum quantization step in which the predetermined quantization step size is always different from the optimum quantization step size.

(G) An encoding apparatus for encoding source video data, the apparatus comprising:

first encoding means for encoding said source video data with a predetermined quantization step size to generate first encoded data;

second encoding means for encoding said source video data based on supplied quantization step size to generate second encoded data;

transmitting buffer for buffering said second encoded data; and

control means for detecting a difficulty of the encoding process in said first encoding means, and for deciding said quantization step size, said optimum quantization step size being varied depending on said difficulty so that said quantization step size becomes smaller when said source video data is more complex and said quantization step size becomes larger when source video data to be encoded is more simple, and said quantization step size being dependent on a remaining capacity of said transmitting buffer so as to suppress overflow and underflow in said transmitting buffer,

wherein the predetermined quantization step size has a fixed value and the optimum quantization step size has a non-fixed value, and

wherein said source video data is always encoded using said predetermined quantization step and said optimum quantization step in which the predetermined quantization step size is always different from the optimum quantization step size.

8. I did not discover that the claims of the original patent claimed more or less than I had a right to claim until after the original patent was issued.

9. No claim was previously presented during prosecution of the above referenced issued patent that particularly claimed the method and apparatus described in paragraph 7 above.

10. The errors noted above, as well as any other errors to be corrected herein arose without any deceptive intention on my part.

11. New claims 16-25 submitted with this application particularly point out the subject matter which I considered my invention and round out the scope of protection to which I am entitled. By the omission of such claims the original patent claims less than I had a right to claim.

I hereby appoint William S. Frommer, Registration No. 25,506, of Frommer Lawrence & Haug LLP or their duly appointed associate, my attorneys, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to file continuation and divisional applications thereof, to receive the Patent, and to transact all business in the Patent and Trademark Office and in the Courts in connection

therewith, and specify that all communications about the application are to be directed to the following address:

William S. Frommer, Esq.
c/o Frommer Lawrence & Haug LLP
745 Fifth Avenue
New York, New York 10151

Direct all telephone calls to: (212) 588-0800 to the attention of William S. Frommer, Esq.

Wherefore I pray that I may be allowed to surrender the Letters Patent No. 5,703,646 granted December 30, 1997, whereof Sony Corporation, on whose behalf and with whose assent this application is made, is the sole owner, by Assignment, and that Letters Patent my be reissued to Sony Corporation for the same invention upon the attached specification.

I, the undersigned applicant, further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Tsuyoshi ODA

July 10, 2007
Date

Residence: Chiba, Japan

Citizenship: Japan

Post Office Address of Inventor:

Sony Corporation
Address:
1-7-1 Konan
Minato-ku, Tokyo 108-0075, Japan
7-35, Kitashinagawa 6-Chome
Shinagawa-ku, Tokyo 141, Japan